REMARKS

In response to the Office Action mailed 15 December 2005, the Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the following comments.

Claims 1-22 were previously pending in this application. The Examiner has rejected Claims 1-3 and 7-22. The Examiner objected to Claims 4-6 but indicated that they were drawn to allowable subject matter. As will be discussed in greater detail below, the Applicants respectfully traverse these rejections and submit the following remarks in support of the patentability of the pending claims.

Allowable Subject Matter

Applicants would like to thank the Examiner for the indication of allowable subject matter with respect to Claims 4-6.

Rejection of Claims under 35 U.S.C. §103(a)

The Examiner has rejected independent Claims 1, 12 and 18, as well as Claims 2-3, 7-11 and 19-22, which depend from Claims 1, 12 and 18, as being unpatentable over U.S. Patent No. 6,002,706 to Staver et al. (hereinafter "Staver") in view of U.S. Patent No. 6,512,584 to O'Loughlin et al. (hereinafter "Loughlin"), U.S. Patent No. 6,548,782 to Dykes et al. (hereinafter Dykes) and U.S. Patent No. 5,987,042 to Staver et al. (hereinafter "Staver '042"). Applicants respectfully disagree with these rejections and submit that the claims are not rendered unpatentable by the combination of the references, singly or taken in combination. Applicants respectfully request that the Examiner withdraw the §103 rejections as applied to the claim set for the reasons discussed below.

Applicants submit that independent Claims 1, 12 and 18 recite, in generally similar language, that the system for laser shock peening system includes a peening laser for projecting a pulsed laser beam at a target site on the *fluid film* atop the workpiece and a monitor *to monitor the film* at the target site. The system further includes a controller for initiating the pulsed laser beam in response to the *quality of the monitored film*.

FIG. 1 of the present application illustrates and exemplary laser shock peening (LSP) system. The laser peening system includes means in the form of a monitor to automatically monitor the quality of the fluid film at a target site for use in controlling peening laser when the fluid film is in a normal state of sufficient quality as desired for the particular LSP process being used. (See for example, paragraph 24 on page 5). The monitor includes a probe laser for generating and projecting a probe laser beam at the target site for detecting the *quality of the fluid film*. Further, the monitor includes an optical detector for detecting reflection of probe beam. An electrical controller is operatively coupled to the peening laser and optical detector for *establishing the pulsed laser beam in response to the monitored condition or quality of the fluid film*. (See for example, paragraphs 25-27 on page 6)

Applicants submit that the combination of references cited fails to disclose all elements of the amended claims. In particular, no teaching is found in Staver, Loughlin, Dykes or Staver '042 of monitoring a confinement fluid film at a target site and initiating the pulsed laser beam in response to the quality of the monitored film. Further, none of the references cited by the Examiner discloses the monitor including a probe laser for projecting a probe laser beam at the target site.

Staver is directed to a method and apparatus for controlling the beam size of a laser. Staver does not teach monitoring of the confinement fluid film at a target site but rather measures the fluence distribution of the laser beam using the portion of the laser beam deflected by beam splitter. In addition, Staver does not disclose a controller for initiating the pulsed laser beam in response to the quality of the monitored film. Rather, Staver discloses a lens controller for adjusting a position of the lens with respect to the target based on the measured fluence distribution. Furthermore, Staver does not employ a probe laser for projecting a probe laser beam at the target site.

Loughlin is cited to supply the "monitor" deficiency of Staver. Loughlin supplies information related to a method of testing the operation of a laser peening system that includes providing a sensor in a possible laser beam path, applying a transparent overlay material to the sensor and directing a pulse of coherent energy to the sensor through the transparent overlay material to create a shock wave. The method further includes

determining a characteristic of the created shock wave with the sensor. In particular, Loughlin teaches measuring vibration of the workpiece in response to the shock wave by measuring and monitoring reflected laser beam. However, no suggestion of monitoring of the quality of the confinement fluid film is addressed at any point within Loughlin. Further, Loughlin does not disclose a controller for initiating the pulsed laser beam in response to the quality of the monitored film.

Dykes is cited to supply the "controller" deficiency of Staver. Dykes is directed to a method of controlling the application of laser peening overlays on the surface of a workpiece to reduce the variability of shock waves generated therein. Dykes employs a measurement device capable of measuring the thickness of transparent and energy-absorbing overlays.

The proposed combination of Staver, Loughlin and Dykes does not include a monitor to monitor the film at the target site, which includes a probe laser for projecting a probe laser beam at the target site. Further, Staver'042 does not supply this deficiency of Staver, Loughlin and Dykes.

The Examiner cited Staver'042 for teaching the use of a Q-switch and clock signal. However, Staver'042 does not disclose a probe laser and thus does not supply this deficiency of Staver, Loughlin and Dykes.

Because all of the elements of independent Claims 1, 12 and 18 are not found in, and are taught away from by, the art cited by the Examiner, the Applicants respectfully submit that the combination of Staver, Loughlin, Dykes and Staver'042 does not render the claims unpatentable in their current form. The Applicants therefore respectfully request that the Examiner withdraw the rejection under 35 U.S.C. §103 of independent Claims 1, 12 and 18, as well as dependent Claims 2-3, 7-11 and 19-22 which depend from Claims 1, 12 and 18, and pass these claims to allowance

CONCLUSION

In light of the remarks presented herein, the Applicants submit that all outstanding rejections to the pending claims have been overcome, and that the case is in condition for immediate allowance and respectfully request such action. If any issues remain

unresolved, the Examiner is invited to telephone the Applicants' counsel at the number provided below so that a resolution can be most effectively reached.

Respectfully submitted,

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10 MAR 06

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